



## **MEMORANDUM**

**TO:** Members of the Board of Education

**FROM:** G. Ottinger via C. Marten

**DATE:** March 1, 2019

**SUBJECT: MONROE CLARK MIDDLE SCHOOL HEAT ISSUE**

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### **Summary**

There was a heating outage impacting 15 classrooms at Monroe Clark Middle School that was not fully resolved for one month. PPO staff takes the issue at Clark and any site that is experiencing difficulty very seriously. Our top priority is to ensure the safe, supportive learning environment needed for students and staff. In this situation, we were not able to resolve the issue as fast as we hoped. The purpose of this memo is to share ongoing improvements to our processes and avoid this type of prolonged outage in the future.

### **Problem Analysis**

*As a result of this outage, the Physical Plant Operations (PPO) team has conducted a deep analysis of the situation, including the additional complexity created by the newly constructed heating and air conditioning system and the joint responsibility with outside contractors, which is summarized below along with identified areas of improvement.*

On January 22, 2019, Monroe Clark Middle School submitted a work request reporting no heat in the upper 200 building. The Monroe Clark principal, Nicole Hendricks, responded quickly to the issue by providing portable heaters and the option for teachers to relocate to classrooms with functioning heat. The issue was not fully resolved until the morning of February 21, 2019. The extent of the outage affected 15 classrooms and three other rooms in the building.

The HVAC technician responded to the work request, evaluated the system and reset the breaker - an appropriate repair. However, the breaker was not holding and tripped again by the next day.

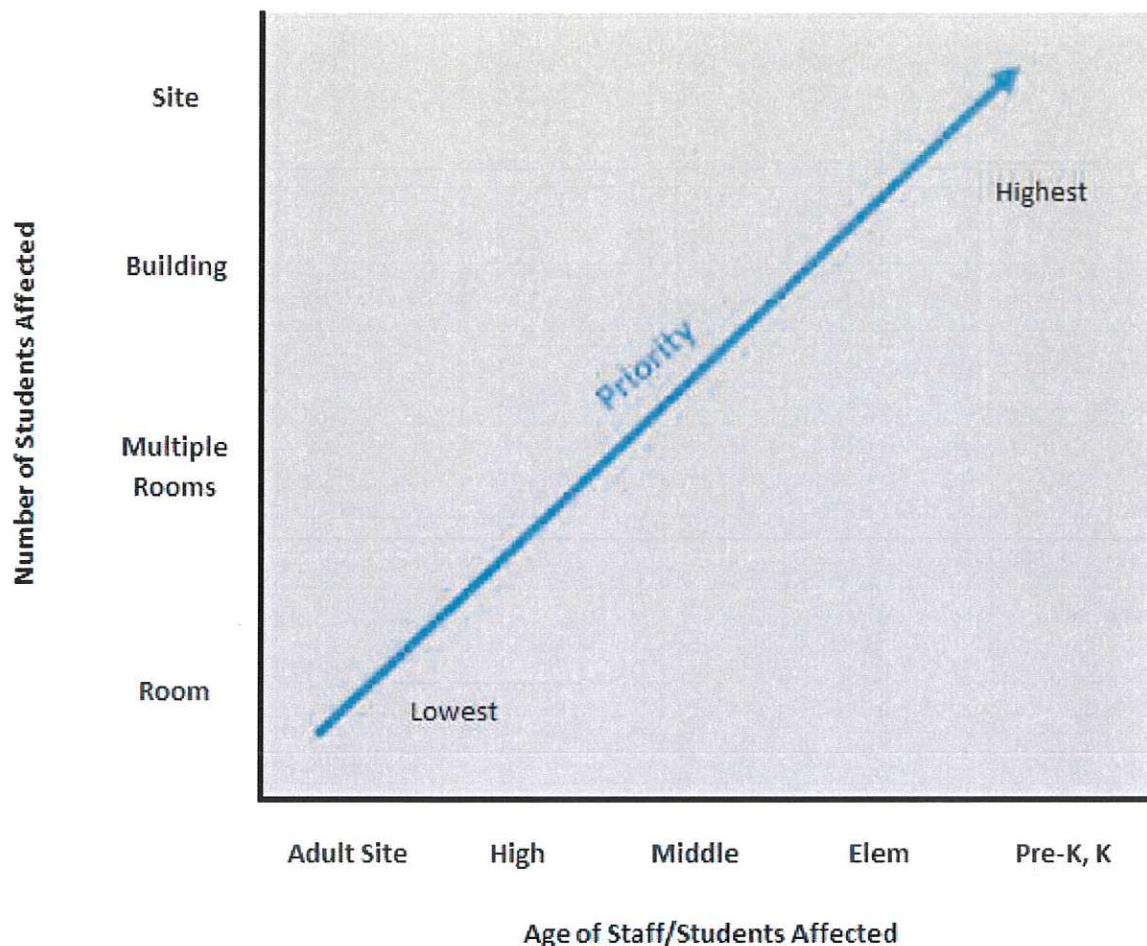
The outside subcontractor was contacted for a warranty repair. They reviewed the equipment and confirmed the system was operating correctly.

The breaker to the unit continued tripping multiple times, so the system was reviewed by a PPO Electrician. Our PPO Electrician determined that the breaker settings, all set to the lowest levels, appeared to be in error. PPO contacted the Electrical Engineer responsible for the Whole Site Modernization project design. The Electrical Engineer clarified that the breaker settings were in error and should be revised, and PPO staff made the necessary changes. The system has been operational since that time.

### **Process Improvements**

In examining the response to the issue in question PPO leadership is addressing a number of factors:

- PPO has a preventive maintenance program and specifically focuses on making sure equipment is ready for the start of the “heating season.” However there is a need to re-evaluate planned maintenance to keep up with the installation of new equipment. Specifically, ensuring new equipment is part of the readiness check.
- Prioritization - When considering student comfort issues, PPO follows a general prioritization scheme as shown below.



The prioritization method needs to be reviewed and more closely formalized in the work order management system. The current work order management system utilizes a more basic prioritization, and a more explicit and better gradation of priorities would benefit PPO and all stakeholders.

- Escalation - Any site or system-wide outage should be escalated to the next level of PPO leadership. This will assist in focusing resources to resolve the issue. PPO is re-emphasizing the expectation to escalate work orders based on the work order's priority and aging.
- Communication - The Custodial Leads/Supervisors (BSS and POS) assigned to the school sites are looked at as "the eyes and ears of PPO." In the case of Clark, the BSS was the site member contacting the PPO work order system. A more descriptive characterization of the issue would have lead to a better understanding of the impact of the issue and would help the maintenance staff better prioritize and triage. In researching the PPO response to the

Clark issue, it was apparent that the severity and magnitude of the situation was not readily known. For example, the number of classrooms affected was not clearly understood by the maintenance staff. This is not a criticism of the Clark BSS but is an area that Maintenance and Custodial can work to improve. PPO leadership will provide training in this area.

- Training - As one might expect, HVAC systems continue to become more complex with computerized controls, wi-fi enabled thermostats, room occupancy sensors, etc. At many sites, the district is moving away from relatively simple units that provide heating/cooling to a single classroom, to larger systems that serve many rooms with sophisticated inputs and controls that actually vary the system's output to meet the needs of each room. PPO needs to continue to train its tradesman to keep up with the current technology.
- Commissioning - In simple terms, Commissioning is the “hand-off” of the completed project from the construction contractor to the district. This typically includes providing Operations and Maintenance manuals, training on the new systems, warranty information, testing reports, etc. The intent is to make a smooth transition from construction to operation. In the case of Clark, a more robust commissioning process may have caught the erroneous breaker settings that were the cause of the equipment malfunction. PPO and FPC are working together to evaluate and improve the commissioning process.
- Staffing - PPO has 19 mechanics focused on heating, ventilation and air conditioning (HVAC) issues. These are broken down into three trades: Refrigeration Mechanics (13 personnel) which handle air conditioning and electric heat; Gas Equipment Repair Technicians (4 personnel) which handle natural gas-fired heating; Steamfitter (2 personnel) which handle boilers/steam heat. At the time of the Clark heating outage and continuing today, three of the trade positions were vacant, resulting in a 16% reduction in available effort. PPO continues to work with Human Resources to fill the vacant positions.

## Summary

PPO examined the response to resolution of the Monroe Clark Middle School heat issue and is making the above mentioned process improvements to avoid an occurrence like this in the future, at any school.